

Amendments to the Claims

Claims 1 (Withdrawn): A method of eliciting protection from a pathogen causing disease in an animal comprising: administering to said animal an immunogenic composition at a dosage level so that an antibody response is not observed.

Claim 2 (Withdrawn): The method of claim 1 wherein said pathogen is a viral pathogen.

Claim 3 (Currently amended): A method of eliciting protection against challenge from a pathogen causing disease in an animal without developing serum level antibodies in said animal said method comprising:

expressing in a maize plant a heterologous nucleic acid molecule encoding an antigenic protein of the pathogen,
preparing a vaccine protective composition of material having edible plant portions of a said transgenic maize plant which expresses an antigenic protein of a pathogen;
orally administering said protective composition material such that the an amount of antigenic said protein administered to the animal is vaccine material that is less than an amount not sufficient to develop serum level produce antibodies against said pathogen, thereby eliciting protection from the pathogen to said animal such that the animal has a wherein said protection is characterized by a reduced titer of virus infection upon subsequent exposure to said pathogen a subsequent challenge to said pathogen, thereby conferring immunity to said animal compared to an animal not administered said vaccine protective composition material.

Claims 4 (Withdrawn): A method of eliciting protection from a pathogen causing disease in an animal comprising: orally administering to said animal an immunologic composition wherein said composition comprises a bacterial enterotoxin capable of eliciting and increased interferon level in said animal; and a carrier and wherein said administration is in an effective amount so that an antibody response is not observed.

Claim 5 (Withdrawn): The method of claim 4 wherein said pathogen is a viral pathogen.

Claim 6 (Withdrawn): The method of claim 4 wherein said enterotoxin is a heat labile enterotoxin from Escherichia coli.

Claim 7 (Withdrawn): The method of claim 4 wherein said enterotoxin is LT toxin or its subunits.

Claim 8 (Withdrawn): The method of claim 4 wherein said enterotoxin comprises a mutation to inactivate the A subunit.

Claim 9 (Withdrawn): The method of claim 4 wherein said virus is TGEV.

Claim 10 (Withdrawn): The method of claim 4 wherein said animal is a pig.

Claim 11 (Withdrawn): A method of increasing interferon levels in animals so that a protective effect against pathogens is observed, said method comprising: introducing, to said animal in oral form, an interferon stimulating amount of an immunologic composition, said composition comprising a bacterial enterotoxin; and a carrier.

Claim 12 (Withdrawn): The method of claim 11 wherein said pathogen is a viral pathogen.

Claim 13 (Withdrawn): A method of increasing interferon levels in animals so that a protective effect against viral pathogens is observed, said method comprising: introducing, to said animal, in oral form, an interferon stimulating amount of an immunologic composition, said composition comprising a bacterial enterotoxin; and a carrier.

Claim 13 (Withdrawn): A method of increasing interferon levels in animals so that a protective effect against viral pathogens is observed, said method comprising: introducing to said animal, in oral form, an interferon stimulating amount of an immunologic composition, said composition comprising a bacterial enterotoxin; and a carrier.

Claim 14 (Withdrawn): The method of claim 13 wherein said enterotoxin is a heat labile enterotoxin from *Escherichia coli*.

Claim 15 (Withdrawn): The method of claim 13 wherein said enterotoxin is LT toxin.

Claim 16 (Withdrawn): The method of claim 13 wherein said enterotoxin comprises a mutation to inactivate the A subunit.

Claim 17 (Withdrawn): The method of claim 13 wherein said virus is TGEV.

Claim 18 (Withdrawn): The method of claim 13 wherein said animal is a pig.

Claim 19 (Withdrawn): A method of inducing protection in an animal from a disease state caused by a rotavirus and coronavirus infection comprising: orally administering to said animal an alpha interferon stimulating amount of a bacterial enterotoxin.

Claim 20 (Withdrawn): The method of claim 19 wherein said enterotoxin is a heat labile enterotoxin from *Escherichia coli*.

Claim 21 (Withdrawn): The method of claim 19 wherein said enterotoxin is LT toxin.

Claim 22 (Withdrawn): The method of claim 19 wherein said enterotoxin comprises a mutation to inactivate the A subunit.

Claim 23 (Withdrawn): The method of claim 19 wherein said virus is TGEV.

Claim 24 (Withdrawn): The method of claim 19 wherein said animal is a pig.

Claim 25 (Cancelled)

Claim 26 (Withdrawn): A method of eliciting protection from a viral pathogen causing disease in an animal comprising: orally administering to said animal an immunologic composition wherein said composition comprises a bacterial enterotoxin capable of eliciting an increased interferon level in said animal; and a carrier and wherein said administration is in an effective amount so that an antibody response is not observed, wherein said viral pathogen is selected from the group consisting of: TGEV, PRRS, and arterivirus.

Claim 27 (Withdrawn): A method of increasing interferon levels in animals so that a protective effect against viral pathogens is observed, said method comprising: introducing, in oral form to said animal an interferon stimulating amount of an immunologic composition comprising a bacterial enterotoxin; and a carrier.

Claim 28 (Withdrawn): A method of inducing protection in an animal from a rotavirus and coronavirus infection comprising: administering to said animal an alpha interferon stimulating amount of a bacterial enterotoxin.

Claim 29 (Previously presented): The method of claim 3 wherein said pathogen is transmissible gastroenteritis virus (TGEV).

Claim 30 (Previously presented): The method of claim 3 wherein said animal is a pig.

Claim 31 (Previously presented): The method of claim 3 further comprising prior to oral administration, determining an amount of vaccine material comprising said plant that will confer immunity without developing serum level antibodies in said animal.

Claim 32 (Previously presented): The method of claim 30 wherein said pig is administered about 50 grams of said plant per dose.

Claim 33 (Previously presented): The method of claim 32 wherein said 50 grams of plant comprises about 2 milligram (mg) of a spike protein per dose .

Claim 34 (Previously presented): The method of claim 29 wherein TGEV has virions expressing a spike glycoprotein (S).